

REMARKS

Claim 24 has been amended to depend from claim 22 thereby providing an antecedent basis for the "hollow fiber membrane." Reconsideration of the 35 U.S.C. 112, second paragraph, indefiniteness rejection is respectfully requested.

Reconsideration is respectfully requested of the rejection of claims 1-3, 5, 9-11, 20, 21, 26-29, 34, 37, 40, and 43 under 102(e) as anticipated by Hopkins.

In order to establish a *prima facie* case of anticipation under Section 102(e), the Patent Office must establish that the reference teach or suggest all of the claim limitations. Claim 1 expressly requires the following operation:

maintaining a concentration level of contaminants in the purification liquid during the purification step which concentration level is lower than a concentration level of contaminants in the electrolyte and thereby maintains a contaminant driving force gradient between the electrolyte and the purifying liquid so contaminants transfer from the electrolyte into the purifying liquid.

The claim therefore requires maintaining a particular contaminant concentration in the purifying liquid relative to the contaminant concentration in the electrolyte. This relationship provides applicants' contaminant driving force.

In support of the rejection of claim 1, the Office action states the following at the bottom of page 2:

Hopkins discloses ... the purifying liquid being maintained to have a relatively lower concentration of contaminants by way of being continuously treated and returned to maintain a driving force for contaminant removal (column 2, lines 36-47).

Applicants respectfully take issue with this interpretation of Hopkins, and the assertion that it provides a basis for a conclusion of anticipation, for the following reasons:

i) Hopkins's only statement about the solubilizer concentration in the interior of his membrane assembly relative to the solubilizer concentration in the bath is as follows:

"The solubilizer solution supplied by the anolyte supply tube 11 may have a concentration of solubilizer 8 **equal** to that desired in the aqueous solution [reference numeral 5]." (See col. 2, lns. 36-38).

Accordingly, Hopkins's respective concentrations in anolyte supply tube 11 and bath 5 may be equal. It does not follow from the fact that they *may* be equal, that any one concentration is lower than another. And since they *may* be equal, it is evident then they *may not* be equal. And if concentrations in Hopkins's anolyte supply 11 and bath 5 may or may not be equal, it is not clear whether the solubilizer concentration in the membrane assembly 9 is less than, equal to, or greater than the solubilizer concentration in the solution 5. Therefore, this statement cannot fairly be extrapolated to mean that the solubilizer concentration in assembly 9 is maintained below the solubilizer concentration in solution 5.

ii) Nowhere does Hopkins state or suggest "treating and returning," or any other operation, for that matter, for purposes of maintaining a driving force for contaminant removal. The only reasonable inference is that Hopkins "treats and returns" in order to exchange spent solubilizer for fresh solubilizer.

iii) Hopkins contemplates that "if the concentration of the solubilizer 8 in the aqueous solution 5 exceeds the desired concentration, solubilizer can flow through the wall of the membrane assembly ...." But neither this statement nor any of his other statements suggest or imply anything about the solubilizer concentration in

the interior of his membrane assembly 9 relative to the solubilizer concentration in the bath 5.

Accordingly, applicants respectfully submit that while Hopkins does generally refer to a solubilizer concentration and to removal of his solubilizer, nowhere does he disclose or suggest the express requirement of claim 1 of controlling the contaminant concentration in the purifying liquid to be lower relative to the contaminant concentration in the electrolyte, i.e.,

Claim 1. ...maintaining a concentration level of contaminants in the purification liquid during the purification step ... lower than a concentration level of contaminants in the electrolyte and thereby maintain[ing] a contaminant driving force gradient between the electrolyte and the purifying liquid so contaminants transfer from the electrolyte into the purifying liquid.

Applicants note that the Office action may be implying that this requirement of claim 1 is inherently anticipated by Hopkins. If so, applicants respectfully request reconsideration and withdrawal of any rejection based on inherency. To establish inherency, the Office must establish by fact or technical reasoning why it is necessary in the solubilizer removal process of Hopkins to maintain a concentration level of contaminants in the purifying liquid lower than the concentration level of contaminants in the electrolyte:

The fact that a certain result or characteristic **may** occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. MPEP 2112 (citing *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993) (emphasis added)).

In relying upon the theory of inherency, the examiner must provide a basis in **fact** and/or **technical reasoning** to reasonably support the determination that the allegedly inherent characteristic **necessarily flows** from the teachings of the applied prior art. MPEP 2112 (citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis added)).

The Office has not demonstrated the inherency of this requirement in the process of Hopkins. In fact, the statement by Hopkins that the concentration of solubilizer in the anolyte supply 11 may be equal to the concentration in the solution 5 suggests this requirement is inherently absent.

In view of the foregoing, claim 1 is patentable over the cited Hopkins reference.

Claims 2-3, 5, 9-11, 37, 40, and 43 depend from claim 1 and are therefore patentable for the same reasons as claim 1, and by virtue of the additional requirements stated therein.

With specific regard to claim 2, it requires maintaining contaminant concentration level in the purification solution below a preselected minimum. The passage cited in the Office action for this proposition simply states that the anolyte supply may have a solubilizer concentration equal to that desired in the bath. Stating that the concentration in Hopkins's 11 may be equal to his desired concentration in 5 is not the same as "maintaining contaminant concentration level in the purification solution below a preselected minimum."

With regard to claim 3, it requires maintaining contaminant concentration level in the purification solution substantially constant. Hopkins does not disclose or suggest this requirement.

With specific regard to claim 37, it is further patentable because it requires the contaminants to comprise "chemicals used in **preliminary** treatments **prior** to the electrolytic metal coating procedure." The cited passage col. 2 lns. 12-17 in Hopkins refers to "**solubilizers**" which are used **during** the electrolytic metal coating procedure. According to the current invention, preliminary treatments include, for example, degreasing, pickling, conditioning and the deposition of conductive base layers (See p. 1 lns. 21-26). Since Hopkins's "solubilizers" are not "chemicals used in preliminary treatments prior to the electrolytic metal coating procedure," this requirement of claim 37 is not taught.

Claim 20 and claims 21, 26-29, and 34 include the same requirements as claim 1 discussed above, and are therefore patentable over Hopkins for the same reasons as claims 1.

In view of the foregoing, claims 1-3, 5, 9-11, 20, 21, 26-29, 34, 37, 40, and 43 are patentable over Hopkins.

Reconsideration is respectfully requested of the rejection of claims 4, 12-15, 18, 19, 30-33, 36, [39], and 42-45 under 103(a) as unpatentable over Hopkins in view of Lee. For a combination of prior art references to render obvious a claim under §103, the combination must teach each and every element of the claim. The Lee reference is cited for the proposition that it discloses additional features of the respective dependent claims. Lee is not cited for the proposition that it discloses the requirement of all the claims as to the contaminant concentration level maintained in the purifying liquid relative to the concentration in the electrolyte. Accordingly, these claims are patentable over the cited combination for the same reasons as claim 1, i.e., because the cited combination fails to disclose or suggest this requirement:

...maintaining a concentration level of contaminants in the purification liquid during the purification step  
... lower than a concentration level of contaminants in the electrolyte and thereby maintain[ing] a contaminant driving force gradient between the electrolyte and the purifying liquid so contaminants transfer from the electrolyte into the purifying liquid.

With specific regard to claims 12-13 and 18-19, they are further patentable because they require circulation of the purifying liquid and electrolyte in circuits fluidly independent of the other. This is illustrated schematically by the two volumetric circuits 10 and 20 moved by pumps 13 and 23 in applicants' Fig. 1. The Office action cites Lee's Fig. 7 as disclosing this feature. Lee's Fig. 7 discloses pump 175 circulating an anolyte circuit comprising fresh anolyte 181 and spent anolyte 185, but it does not disclose independently fluidic circulation of the electrolyte (paint bath) 195. Thus, Hopkins and Lee do not combine to render claims 12-13 and 18-19 obvious.

With specific regard to claims 15, 19, 32, and 33, these are further patentable because they require the variance of **temperature** and/or **pressure** as a function of the degree of purification desired. The Office action asserts that Lee discloses use of a pressure parameter via pump 175. But there is absolutely no suggestion by Lee to vary the pump pressure as a function of the degree of purification desired. Inasmuch as the Lee system is an electrolysis circuit relying on current to move his anions, it appears current and conductivity are the parameters he varies to control this movement. See Lee Col. 5, lns. 42-50. Thus, Hopkins and Lee do not combine to render claims 15, 19, 32, and 33 obvious.

With specific regard to claim 39, it is further patentable because it requires the contaminants to comprise "chemicals used in **preliminary** treatments **prior** to the electrolytic metal coating procedure." The cited passage col. 2 lns. 12-17 in Hopkins refers to "**solubilizers**" which are used **during** the electrolytic metal coating procedure. According to the current invention, preliminary treatments include, for example, degreasing, pickling, conditioning and the deposition of conductive base layers (See p. 1 lns. 21-26). Since Hopkins's "solubilizers" are not "chemicals used in preliminary treatments prior to the electrolytic metal coating procedure," this requirement of claim 39 is not taught.

In view of the foregoing, claims 4, 12-15, 18, 19, 30-33, 36, 39, and 42-45 are patentable over Hopkins in view of Lee.

Reconsideration is respectfully requested of the rejection of claims 6-8, 17, 22-25, 35, 38, 41, and 44 further in view of Christensen. For a combination of prior art references to render obvious a claim under §103, the combination must teach each and every element of the claim. The Lee and Christensen references are each cited for the proposition that they disclose additional features of the respective dependent claims. Neither is cited for the proposition that it discloses the requirement of all the claims as to the contaminant concentration level maintained in the purifying liquid relative to the electrolyte. Accordingly,

these claims are patentable over the cited combination for the same reasons as claim 1, i.e., because the cited combination fails to disclose or suggest this requirement:

...maintaining a concentration level of contaminants in the purification liquid during the purification step  
... lower than a concentration level of contaminants in the electrolyte and thereby maintain[ing] a contaminant driving force gradient between the electrolyte and the purifying liquid so contaminants transfer from the electrolyte into the purifying liquid.

With specific regard to claim 38, it is further patentable because it requires the contaminants to comprise "chemicals used in **preliminary** treatments **prior** to the electrolytic metal coating procedure." Cited passage col. 2 lns. 12-17 of Hopkins refers to "**solubilizers**" which are used **during** the electrolytic metal coating procedure. According to the current invention, preliminary treatments include, for example, degreasing, pickling, conditioning and the deposition of conductive base layers (See p. 1 lns. 21-26). Since Hopkins's "solubilizers" are not "chemicals used in preliminary treatments prior to the electrolytic metal coating procedure," this requirement of claim 38 is not taught.

In view of the foregoing, claims 6-8, 17, 22-25, 35, 38, 41, and 44 are patentable over the cited combination.

\* Enclosed is the required fee of \$110.00 for a one-month extension.

Conclusion

In view of the foregoing, applicants respectfully request issuance of a Notice of Allowance for claims 1-48.

Respectfully submitted,



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